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Unless, indeed, it be necessary to explain that the visibility of an object depends in some degree on the quantity of light we receive from it.

I am sorry, on the other hand, to have misinterpreted Mr. Stone's own remarks about gaseous nebulæ. Without, however, for a moment questioning his having really intended his paper to be understood as he explains (in fact, few actions can be more discourteous or unjust than to question anyone's explanation of his own words), I must say that it does not seem to me that he succeeded in clearly indicating his meaning in his former paper. He not only did not dwell upon, but he did not even mention the physical processes which would result from the actual, as distinguished from the optical, overlapping of the gaseous envelopes surrounding the component stars of the clusters he considered. It was a natural mistake, therefore, to suppose that his remarks referred only to optical over-lapping. My remarks applied only to his reasoning so misunderstood.

Observations of Shooting Stars in 1877. By W. F. Denning, Esq.

The following table of radiant points observed in 1877 is presented as a continuation of my paper in the *Monthly Notices*, vol. xxxvii., pp. 105–115, giving a similar list of results for 1876. In 1877 the paths of 1,929 shooting stars were registered, and of this total the great majority (1,593) were seen during the last half of the year. The estimated magnitudes were as follow :—

> 1st.	= 1st.	= 2nd.	= 3rd.	= 4th.	= 5th.		Total.
45	118	346	491	636	293	=	1,929

Observations were made nearly every fine night in the absence of moonlight, and were about equally divided in the aggregate between the morning and evening hours. In the table of radiants I have given the number of meteors traced from each centre, and have affixed notes to them, which render any detailed preliminary references unnecessary. The chief radiants were :—

No.	Period.	Radiant. ° °	No. of ↓s.	No.	Period.	Radiant. ° °	of ↓s.
1	Jan. 4–20	295 + 53	20	97	Oct. 2—Nov. 13	104 + 49	36
49	July 6—Aug. 16	7 + 37	37	99	Oct. 2—Nov. 13	105 + 12	33
62	July 6—Aug. 16	334 + 44	24	106	Oct. 2—Nov. 13	113 + 27	21
53	July 6—Aug. 16	7 + 53	20	117	Oct. 2—Nov. 13	101 + 73	23
52	July 6—Aug. 16	315 + 50	21	113	Oct. 2–18	133 + 79	22
65	Aug. 10	43 + 58	285	89	Oct. 15–20	92 + 1	57
109	Sept. 4—Oct. 19	84 + 54	26	118	Oct. 15—Nov. 13	130 + 1	30
108	Sept. 4—Oct. 19	108 + 38	20	122	Oct. 28—Nov. 13	43 + 2	31

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of the satellites as seen with large or small telescopes. But I find nothing in Mr. Stone's own words which can be so interpreted.

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In getting the radiants I have been careful to consider the lengths of the apparent paths and specialities of motion and appearance in the various meteors. When this is carefully done there is little danger of *pseudo*-radiants, even in cases of feeble showers. A proportion of new radiants will be found amongst my observations.

Generally I find meteors far more abundant during the last half of the year than during the first half, but my notes chiefly have reference to the former period, so that I cannot give a fair comparison. For the six months, July–December, the following are the periods of watching and number of meteors seen (omitting the *Perseïds*) during the last two years:—

Month 1876–77.	Obs. A.M.		Obs. P.M.		Obs. A.M. & P.M.	
	Hours.	Meteors.	Hours.	Meteors.	Hours.	Meteors.
July	13	133	24¼	166	37¼	299
August	17¼	271	30	303	47¼	574
September	12	146	15¼	118	27¼	264
October	24¾	366	47	362	71¾	728
November	24¼	290	34¼	278	58½	568
December	11	139	24¾	157	35¾	296
July—Dec.	= 102¼	1345	175½	1384	277¾	2729

The table shows the remarkable frequency of shooting stars in the morning as compared with the evening apparitions. In any calculation of the horary numbers from these figures, one-sixth of the periods of watching should be deducted as allowance for time spent in registering the paths.

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No.	Date.	Radiant Point. R.A.	Dec. N.	No. of Meteors.	Notes and Comparisons.
1877.	1877.	°	°		
1	January 4–20	295	+53	20	Strong shower; maximum Jan. 17; meteors bright, rather slow.
2	January 4–20	57	−12	7	Very fine, slow meteors; maximum Jan 4–8; radiant near γ *Eridani*.
3	January 4–20	220	+52	5	Meteors rather slow; also a radiant at 231° + 54°, Jan. 4 (*Quadrantids*).
4	January 4–20	209	+67	7	Rapid white meteors; near α *Draconis*.
5	January 14–17	260	+45	6	Short, small meteors; a morning shower.
6	January 4–20	248	+73	7	Very slow meteors; new shower near γ *Ursæ Minoris*.
7	January 4–20	84	+74	6	Uncertain. Short, quick meteors. 110° + 70°, Jan. 27, 1868 (Zezioli's obs).
8	January 4–20	130	+44	11	Strong shower; maximum Jan. 15 A.M. Bright meteors.
9	January 4–20	250	+25	10	A feeble morning shower in *Hercules*. Comet of 1672, 256° + 20°, Jan. 20.
10	January 4–20	209	+15	4	Probably two separate showers A.M.; near α *Boötis*. Slightly seen in Jan. 1878 also.
	January 14–20	211	+ 4	5	Swift meteors, with streaks. Tupman, 200° + 2°, Jan. 8–11, 1870.
11	January 14–20	179	+47	9	Uncertain. Confirms S. & Z. 175° + 48°, Jan. 6.
12	January 4–20	160	+28	6	Very swift, white meteors.
13	February 15–20	236	+11	10	Exact. Strong shower A.M., near α *Serpentis*.
14	February 20	263	+36	6	Exact. A pair of rich A.M. showers; rapid bright meteors.
15	February 20	181	+34	8	Exact. Corder, 263° + 36°, January 27, 1877.
16	February 15–20	261	+ 4	3	Feeble; uncertain. Meteors with streaks; radiant near β *Ophiuchi*.
17	February 15–21	210	−13	5	Uncertain. Meteors very swift. Tupman, 202° − 9°, February 13.
18	February 4–20	167	+ 5	5	Meteors slow. Tupman, 165° + 4°, January 8–10.
19	February 2–4	105	+29	4	Meteors slow; rather uncertain. Near α *Geminorum*.

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No.	Date.	Radiant Point. R.A.	Radiant Point. Dec. N.	No. of Meteors.	Notes and Comparisons.
1877.	1877.	°	°		
20	February	234	+32	12	Well defined and active shower. Confirmed by other observations.
21	February	120	− 5	9	A new shower in *Monoceros*.
22	March 14	263	+48	6	Exact. Confirms S. & Z. 260° + 46°, March 31.
23	March 14	218	+36	6	Active shower; meteors slow; near β *Boötis*.
24	March 14–19	320	+44	4	Morning showers; near α *Cygni*.
	April 16–19	315	+38	10	Confirms Greg (49), 307° + 40°, March 15—April 21.
25	May 15–17	299	+36	4	Confirms S. & Z. 301° + 37°, May 22–24. ? same as preceding.
26	March 8	189	+26	6	Active shower. Confirms S. & Z. 187° + 24°, April 11–19.
27	March	175	+10	5	A very good shower of bright meteors.
28	March 17	252	+12	3	Exact. One meteor nearly stationary.
29	March 17	330	+33	?	Strongly suspected. Corder, 325° + 34°, March.
30	April 16–19	303	+13	8	= Comet V. 1857, 302° + 11°, April 4. Confirmed by other observations.
31	May 15	304	+ 7	4	Slightly seen. Distinct to the preceding?
32	March 14	280	−14	2	Meteors very swift; one long, continued shower.
	April 16–19	289	−15	4	Confirms Greg (52), 290° − 10°, March 25—April 30.
33	March 1–15	300	+80	9	Bright, slow meteors; exact.
34	April 16–19	286	+ 5	12	Rather uncertain. = Comet II. 1844, 288°·5 + 5°, April 21.
35	March 14	277	+25	5	Exact. Well seen, A.M.; near β *Lyræ*.
36	April 16–19	267	+21	6	Confirms Greg, April 20, 267° + 25°.
37	April 16–19	298	+25	6	A new A.M. shower in *Vulpecula et Anser*.

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38	April 16–19	260 + 2	4	Confirms Tupman, 256° − 2°, April 27.
39	April 16–19	228 − 2	5	Exact. A rich shower. Confirms G. & H. (53), 227° − 5°, Mar. 20–May 29.
40	April 16–19	269 + 37	7	*Lyraids.* At 274° + 37° in 1873 and 1874. = Comet I. 1861.
41	March 14 March 14 April 16–19	244 + 50 250 + 54 255 + 50	6 4 5	These showers are possibly connected together. Mean position at 250° + 51°. S. & Z. 246° + 46°, April.
42	April 16–19 May 7	218 + 25 219 + 17	4 3	Uncertain. Probably the same shower. Seen at 220° + 21° on April 21, 1874. (Greg 53*a*.)
43	May 15–17	354 + 41	4	Heis, 355° + 42°, May 20–29. An A.M. shower.
44	May 17	283 + 55	4	*Draconids.* Short, rapid meteors. Seen also in 1873 at 283° + 59°, April 21.
45	April—May	258 − 12	11	*Serpentids.* Active shower. Greg (80–85), 264° − 11°, June, July, and Aug.
46	May April—May	210 − 10 203 − 8	3 ?	A rich and probably new shower. Seen also by Corder at 208° − 6°, April—May 1877.
47	June 15–17	302 + 64	5	Not very certain.
48	June 15–17	285 + 32	4	Confirms Tupman, 280° + 29°, June 29, 30.
49	July 6–17 August 3–16	4 + 35 10 + 38	21 16	A very active shower; radiant not very precise. *Andromedes* I. Maximum about July 7–11. Greg (103), 7° + 33°, July 21—September 3. = Comet II. 1870, 3°·5 + 38°·5, August 14–.
50	July 6–17 August 3–16	0 + 26 4 + 20	4 7	Distinct to preceding. Radiant near *α Andromedæ*. Denza, 2° + 29°, August 8–13.
51	July 6–17	271 + 8	5	Uncertain. Meteors very slow.
52	July 6–17 August 3–16	315 + 48 315 + 51	8 13	Active shower; radiant near *α Cygni*. *Cygnids* I. Swift, white meteors. Greg (81), 309° + 48°, July—August.

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No.	Date.	Radiant Point. R.A.	Radiant Point. Dec. N.	No. of Meteors.	Notes and Comparisons.
1877.	1877.	°	°		
53	July 6–17	6	+53	11	Exact. A fine shower of *Cassiopeids*; maximum about July 12–17. Streaks.
	August 3–16	8	+53	9	Swift, white meteors with streaks. S. & Z., 7° + 50°, July 11—Aug. 7.
54	July 6—August 16	350	+37	11	Active shower; possibly new.
55	July 6–17	290	+43	8	Well-marked radiant near δ *Cygni*.
	August 3 16	292	+48	7	Confirms G. and H., 293° + 42°, August 10, 1871.
56	July 6—August 16	349	+53	14	Observed chiefly in July. Short, quick meteors.
57	July 6–20	317	−11	13	Strong maximum on July 20. Tupman, 313° − 6°, July 21, 22.
58	July 6–17	336	− 7	5	The *Aquarids*. Greg (109), 337° − 6°, July 5—October 31!
59	August 3–16	342	−12	10	A distinct shower to the preceding; near α *Aquarii*.
60	July 6—August 16	333	+26	11	Chiefly observed in July. Greg (96), 338° + 26°, July—August 15.
61	July 6–17	338	+10	10	Confirms Greg (97), 338° + 17°, June 28—September 15.
	August 3–16	343	+12	8	The same shower, long continued; near α *Pegasi*.
62	July 6–17	334	+43	6	The *Lacertids*. The real centre for this shower is at 334° + 48°.
	August 3–16	335	+45	18	Very active in August; meteors very swift.
63	July 6–17	47	+45	5	Apparently a very long-continued shower, near α *Persei*, and quite distinct to the *Perseids* of August 10 near η.
	August 3–16	46	+45	6	
	September 4–16	47	+45	7	= Comet of 1764, 49° + 45°·5, July 25.
64	July 6–17	36	+47	6	A closely bordering shower to the last at θ *Persei*. = Comet of 770, 39° + 45°, July 8.
65	August 3–7	40	+56	20	*Perseids*. Meteors very swift, invariably with streaks. The four positions are exact, and probably show a distinct advancement of the radiant in R.A. Horary number from 43° + 58° on 10th, 57.
	August 10	43	+58	285	
	August 12	50	+55	14	
	August 16	60	+59	5	

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66	July 6–17	280 + 57	5	*Draconids.* Seen by many other observers in July and August.
67	July 6–17	285 − 12	5	Well-marked shower; meteors very slow and bright.
	August 3–16	283 − 9	3	Uncertain and feeble in August. Greg (204), 285° − 13°, June 24—July 6.
68	July 6–17	298 − 8	5	Uncertain. Meteors slow. Schmidt, 294° − 7°, June, July, August.
69	July 6–17	258 + 37	6	Exact. Seen by Prof. Herschel, July 16, 1871, at 257° + 36°.
70	July 6–17	313 + 33	5	Not exact. Meteors very slow. *Cygnids* II. Greg (101), 315° + 30°, July–Aug.
71	July 6—August 16	330 + 70	13	Short, swift meteors; near β *Cephei*; seen chiefly on August 12.
72	July 6–17	319 + 9	?	Rather uncertain. Feeble. Greg (118), 318° + 7°, July 5—August 31.
73	August 3–16	40 + 28	8	Meteors rapid. Tupman and Schmidt, 39° + 28°, August 22–28.
74	September 16	50 + 31	4	Meteors slow. Heis, 48° + 35°, Sept.—Oct. 15. Distinct to preceding.
75	August 3–16	22 + 46	7	Maximum August 4. A new shower at γ *Andromedæ*.
	September 4–16	28 + 45	4	Doubtful in September. 22° + 45°, September 5–12, Zezioli's observations.
76	August 3–16	330 + 10	12	Active shower; radiation somewhat diffuse.
77	August 10–12	70 + 65	10	A well-marked new shower in *Camelopardalis*.
78	August 3–16	18 + 63	15	*Cassiopeids.* Meteors swift and slow. ? two showers here.
79	September 4–16	16 + 54	8	These showers are probably distinct to the preceding.
	October 2–19	21 + 55	5	Confirms Greg (173), 14° + 57½°, Sept. 15–Nov. 15. Heis, 21° + 55°, Oct.
80	August 3–16	306 + 6	4	*Aquilids.* Slow meteors. Feeble shower in 1877.
81	July 28—August 7	147 + 62	3	Not exact. Fine, slow meteors. Schmidt, 148° + 67°, August 8–17.
82	August 12–16	31 + 18	11	Strong maximum on August 12; meteors with streaks; a new A.M. shower.
83	August 3–16	61 + 48	11	A well-marked shower; exact; maximum August 12–16; suspected also in September (5 meteors).
84	August 3–16	287 + 45	3	Feeble and uncertain. G. & H., 285° + 44°, August 2—September 25.

No.	Date.	Radiant Point. R.A.	Radiant Point. Dec. N.	No. of Meteors.	Notes and Comparisons.
1877.	1877.	°	°		
85	August 3–16	307	+67	5	Well seen by Corder on August 17, 307° + 65° (11 meteors).
	September 4–16	314	+66	5	Previous shower continued; not certain. Heis, 311° + 65°, Sept. 16–30.
86	July 6–17	295	+85	6	A series of showers not far from *Polaris*. In July–August, at 307° + 82°. = Comet III. 1853. 300° + 80°, August 13.
	August 3–16	320	+80	5	
	September 4–16	330	+78	4	Feeble and uncertain in September.
	October 2–20	310	+77	17	Active shower, with maximum on October 3–4. Meteors rather slow.
87	September 12	10	+ 0	3	Not very certain. Seen only on September 12.
88	September 4–16	242	+46	8	Radiant diffuse and inexact.
89	September 15, 16	88	+17	8	Beginning of the *Orionids*? A new A.M. shower.
	October 15–20	92	+15	57	*Orionids*. Maximum October 19, A.M. Very swift meteors; 47 had streaks.
90	September 15, 16	156	+41	5	Exact. Meteors swift, with streaks; just before daybreak.
	October 2–18	153	+42	4	Exact. A new radiant close to *μ Ursæ Majoris*.
91	August 3–16	30	+36	13	Exact. Active shower at *β Trianguli* of short, quick meteors.
92	September 4–16	160	+78	6	Not very exact. Swift, white meteors.
	October 2–18	167	+75	5	Meteors with streaks; a feeble shower.
93	September 4–16	267	+20	4	Not certain. Meteors very slow. Schmidt, 264° + 25°, July 5–31.
94	September 4–16	220	+78	10	A well-defined and active shower in *Ursa Minor*.
	October 2–18	213	+79	8	Meteors swift; less well defined in October than in September.
95	September 7–16	87	+34	10	Very swift meteors, with streaks. Maximum September 16. At *θ Aurigæ*.
96	September 4–16	61	+36	15	Exact. A rich shower; meteors very rapid, with streaks. Max. Sept. 7–16.

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97	September 4–16	100 + 58	10	Probably one long-enduring radiant, at 103° + 52°.
	October 2–19	105 + 50	15	Very exact in October. Meteors short and very rapid.
	October 28—November 13	103 + 48	21	An active shower; possibly new (105° + 50° and 98° + 45°).
98	September 4–16	255 + 65	6	Slow meteors; radiant fairly well defined, near ζ *Draconis*.
	October 2–5	253 + 64	4	
99	September 15–16	101 + 11	5	Slightly seen, and not very certain. Perhaps connected with following.
	October 2–19	103 + 12	22	Very rich shower; maximum October 8; meteors very rapid.
	October 28—November 13	107 + 11	11	Confirms Tupman, 107° + 12°, October 8, 1869.
100	September 4–16	284 + 62	4	Uncertain. Heis, 286° + 57°, September 16–30.
101	September 4–16	53 + 64	6	Chiefly September 5–7. Heis, 57° + 61°, October 1–15.
102	September 4–16	73 + 14	7	Meteors rapid; maximum Sept. 15. Tupman, 75° + 15°, Sept. 22, 1871.
103	September 4	40 + 72	6	An active transient shower. G. & H., 44° + 73°, September.
104	September 4–16	59 + 9	5	Meteors rapid, with streaks. Slightly seen and uncertain.
	October 28–November 13	62 + 9	6	Meteors rather slow; streaks. Schmidt, 62° + 6°, October 10–22.
105	September 7–16	49 + 14	6	Meteors rapid, with streaks. Schmidt, 51° + 14°, September 3–30.
	October 2–19	47 + 16	5	Confirmed by Corder at 47° + 14°, October 1877.
106	September 4–16	113 + 24	4	Slightly seen and rather uncertain. Beginning of *Gemellids*.
	October 2–19	115 + 29	13	Exact. Meteors rapid, with streaks. S. & Z., 113° + 29°, Oct. 21–25, 1868 (56 meteors).
	October 28–November 13	110 + 25	8	Exact. Meteors rapid; maximum on November 7. *Gemellids*.
107	September 4–16	70 + 85	7	Meteors rapid; radiant near *Polaris*.
	October 2–18	50 + 85	9	Confirms Greg $\binom{128}{143}$, 105° + 86°, September—October.

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No.	Date.	Radiant Point.		No. of Meteors.	Notes and Comparisons.
		R.A.	Dec. N.		
1877.	1877.	°	°		
108	October 2–19	108	+38	16	Meteors rapid, with streaks; suspected also in September.
109	September 4–16	85	+53	8	Maximum September 5. *Aurigids.* Radiant not very exact.
	October 2–19	84	+55	18	Maximum October 5–8; two showers in October? suspected also in November.
110	September 15	130	+46	4	Meteors rapid, with streaks; seen just before daybreak.
	October 2–19	130	+47	11	Active shower; maximum October 15, 16; seen by several other observers.
111	September 16–October 7	20	+ 8	8	Not well seen; maximum September 16; meteors very slow.
112	September 4–16	72	+41	6	Meteors rapid. Confirms Corder, 75° + 45°, October (14 meteors).
113	October 2–18	133	+79	22	Exact. Extremely well marked and certain shower, with maximum about October 3–4. Meteors very rapid, with streaks. = Comet I. 1825, 133° + 77°, October 7.
114	October 2–18	138	+58	10	New shower of rapid meteors in *Ursa.*
115	October 2	225	+52	7	Exact. Fine shower of slow, bright meteors; new and rich radiant.
116	October 16, 17	178	+34	4	Exact. Short, quick meteors; new. At dawn.
117	October 2–19	100	+73	9	Long-continued and rich shower of very swift meteors in *Camelopardalis.*
	October 28—November 13	102	+73	14	Exact. Strong max. on Nov. 8, A.M. Seen by S. & Z. and Gruber on Oct. 28.
118	October 15–19	133	+21	18	Exact. Maximum Oct. 14–15. A shower of very, very swift meteors.
	October 28—November 13	127	+17	12	Exact. Maximum November 12–13. Long paths, not often with streaks.
119	October 15–18	120	+15	9	Exact. Distinct to preceding; meteors very rapid.
120	October 15–18	140	+28	9	Exact. Meteors with streaks; one meteor stationary. Near ε *Leonis.*
121	October 2–18	186	+71	6	Exact. Very feeble shower; meteors small, rather slow. Compare No. 157.
122	October 8	47	+28	8	Short, quick meteors. Seen only on October 8.
	October 28—November 13	43	+22	31	Exact. A very rich shower of rather slow meteors; max. Oct. 28—Nov. 1.
123	October 2–18	61	+47	8	Maximum October 8. Bright meteors; very rapid, without streaks.
	October 28—November 13	61	+49	8	Maximum November 4. Continuation of preceding.

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124	October 2–18	31 + 39	10	Active shower. Strong maximum on October 8. Short meteors, not very swift.
125	October 2—November 13	8 + 35	7	Rapid. Chiefly on October 8. Meteors swift.
126	October 2–18	77 + 31	9	Exact. Max. Oct. 8. Meteors with streaks. Tupman, 77° + 30°, Oct. 13.
	October 28—November 13	77 + 32	8	Exact. Maximum November 7. Meteors without streaks.
127	October 2–19	133 + 68	8	Meteors rapid. Possibly a new shower.
128	September—October 18	42 + 59	9	*Perseïds.* Not very certain. Confirms Greg (168), 46° + 55°, November.
	October 28—November 13	45 + 60	6	
129	October 2–5	290 + 70	7	Exact. Meteors rather slow. Confirms Heis.
130	October 5–8	56 + 52	4	Rather slow meteors. = Comet VI. 1847, 54° + 52°·5, October 4?
131	October 15–19	121 ± 0	6	Meteors very swift; A.M. showers. Tupman, 124° + 4°, November 7.
132	October 15–19	100 + 1	5	Tupman, 101° ± 0°, October 16.
133	October 17–19	63 + 22	7	The *Taurids* I. Meteors rather slow. Average radiant position 60° + 20°.
	October 28—November 13	57 + 18	9	A somewhat feeble shower in 1877.
134	October 8—November 13	32 + 50	8	Meteors slow. Seen chiefly on October 8. New radiant at θ *Persei.*
135	October 15–19	86 + 8	7	A subradiant of the *Orionids.* Tupman, 86° + 6°, October 8.
136	October 2—November 13	80 + 21	9	Meteors very swift. Radiant rather uncertain near ζ *Tauri.* Compare No. 152.
137	October 2—November 13	4 + 50	7	Inexact. Confirms G. & H., 5° + 55°, Oct., and Schmidt, 5° + 53°, Oct. 22–28. A radiant also strongly suspected at 11° + 70°, October 8–14.
138	October 28—November 13	30 + 16	11	Not very swift meteors. Greg (154), 34° + 23°, October 19—November 20.
139	October 28—November 13	133 + 31	10	Very swift meteors with streaks. Maximum November 10–12.
	November 25—December 13	131 + 32	6	Suspected also in September. Maximum December 2.
140	October 28—November 13	60 + 34	12	Meteors rather slow. Suspected at 60° + 37°, November 25—December 13.
141	October 28—November 13	19 + 30	7	Meteors rather slow. Radiant fairly exact. Gruber, 20° + 26°, Oct. 17–22.
142	October 28—November 13	25 + 46	4	Confirms Heis, 24° + 42°, November 1–15. Perhaps distinct to *Andromedes.*
	November 25–27	24 + 45	9	*Andromedes.* Meteors very slow. Maximum Nov. 25; very feeble on Nov. 27.

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No.	Date.	Radiant Point.		No. of Meteors.	Notes and Comparisons.
		R.A.	Dec. N.		
1877.	1877.	°	°		
143	October 28—November 13	40	+77	9	Exact. New shower of rather slow meteors. Maximum October 31—November 4. Suspected in December also.
144	October 28—November 13	338	+59	6	Maximum Nov. 10. Confirms Heis, 338° + 56°, October 17—November 15.
145	October 28—November 13	97	+25	8	Rapid meteors. Maximum November 4. = *Gemellids* No. 106?
146	October 28—December 13	173	+11	5	New A.M. shower near β *Leonis*. Meteors very rapid.
147	October 28—November 13	40	+10	5	Maximum November 9. Confirms Tupman, 43° + 11°, October 13.
148	November 12	125	+40	5	Exact. One meteor stationary.
149	November 10–13	148	+24	5	A feeble return of the *Leonids*. Meteors very rapid, with bright white streaks.
150	October 28—November 13	70	+65	6	Exact. Maximum November 13, A.M. Well seen in 1876 at 69° + 66°.
151	December 1–13	109	+33	9	*Geminids*. Rapid, short meteors.
152	November 25–December 13	80	+25	6	*Taurids* II. Meteors very slow. Well seen in 1876. Sawyer, 80° + 22°, Dec. '77.
153	December 8–12	145	+ 7	8	Exact. Strong maximum Dec. 8, A.M. Meteors very swift, with streaks.
154	December 10–13	199	+19	5	Short, swift meteors. Just before daybreak. Slightly seen.
155	December 10–13	221	+43	3	A morning shower at β *Hercules*. S. & Z., 220° + 40°, January 19.
	January 4–9	221	+39	6	Meteors rapid, with streaks.
156	December 10–13	230	+33	3	Short, quick meteors. Just before daybreak. Slightly seen.
157	November 25–December 13	185	+71	9	A strong shower; maximum November 29. Rapid meteors with streaks.
158	November 25–December 13	70	+15	5	Rather uncertain. Meteors not very swift.
159	November 27	54	+48	4	Meteors swift; fairly exact. Seen while watching for *Andromedes*. Probably a rich shower. Weiss, 52° + 49°, Novovember 27, 1872.
160	November 27–December 13	87	+37	5	Diffuse and rather uncertain. Heis, 95° + 33°, December 1–15.
161	November 25–December 13	102	+45	4	Uncertain. Different to *Geminids*.
162	December 10–12	166	± 0	3	Meteors very rapid, with streaks. Only slightly seen.